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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/753,523	01/08/2004	Eric Lawrence Barsness	ROC920030328US1	9847

30206 7590 07/11/2006

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EXAMINER
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PYO, MONICA M

ART UNIT	PAPER NUMBER
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2161

DATE MAILED: 07/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/753,523

Applicant(s)

BARSNESS ET AL.

Examiner

Monica M. Pyo

Art Unit

2161

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 3-16 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 17-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***DETAILED ACTION***

1. Claims 1-20 are present for examination.
2. Claims 3-16, 20 are not examined.
3. Claims 1-2, 17-19 are rejected.

***Election/Restrictions***

4. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-2 and 17-19, drawn to a method and an apparatus for indexing a database table, identifying a plurality of substrings and creating a corresponding index, classified in class 707, subclass 7.
  - II. Claims 3-16 and 20, drawn to a method and an apparatus for running a query on a database table, identifying a set of values that satisfy the query based on the plurality of corresponding indices, classified in class 707, subclass 3.
5. Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has a separate utility such as indexing a database table, identifying a plurality of substrings and creating a corresponding index, and build a bitmap based on the indices; invention II has a separate utility such as running a query on a database table, identifying a set of values that satisfy the query based on the plurality of corresponding indices, scanning the values to find matching values, and generating a result set of matching values. See MPEP § 806.05(d).

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6. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

7. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

8. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

9. During a telephone conversation with Mr. William (Bill) McGinnis on 6/21/2006 a provisional election was made without traverse to prosecute the invention of group I, claims 1-2, 17-19.

Affirmation of this election must be made by applicant in replying to this office action. Claim 3-16 and 20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Claim Objections***

10. Claims 1, 2 and 17-19 are objected to because of the following informalities:

Regarding claim 1:

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- The phrase “the corresponding substring occurs in that particular value.” in lines 7-8 should be changed to “a corresponding substring occurs in the particular value.”

Claim 19 is objected based upon the same reason of claim 1.

Appropriate correction is required.

Regarding claim 2:

- The phrase “that particular value” in lines 2-3 should be changed to “the particular value.”

Appropriate correction is required.

Regarding claim 17:

- It is unclear whether or not the term “within the value” of line 8 refers to. Does it refer to “a column of values” of lines 1-2 or does it refer to “each value in the column” of lines 6-7?

Clarification is required.

Regarding claim 18:

- It looks this claim is depending on the apparatus claim 17, not the method claim. Thus, the phrase “The method according to claim 17,” in line 1 should be corrected.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-2, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,738,779 issued to Shapira (hereafter Shapira), in view of U.S. Patent No. 6,785,677 issued to Fritchman (hereafter Fritchman).

Claim 1:

Regarding Claim 1, Shapira discloses a method for indexing a database table, said table comprising a column of values, the method comprising the steps of:

identifying a plurality of substrings, each substring comprising one or more characters (Shapira: col. 5, lns. 11-13; col. 6, lns. 28-30); and

for each substring creating a corresponding index, wherein each corresponding index includes a respective entry for each value in the column, the respective entry for a particular value being indicative of whether the corresponding substring occurs in that particular value (Shapira: col. 5, lns. 11-30).

Shapira does not explicitly teach the limitation of “column”. Yet, Shapira teaches the table in figs. 2A & 2B.

However, Fritchman explicitly disclose a column (Fritchman: col. 6, lns. 55-57).

It would have been obvious to a person having ordinary skill in the art at the time of invention to apply the feature of arranging values in a column of Fritchman into the string search method of Shapira. The skilled artisan would have been motivated to incorporate the Fritchman’s teaching of a column in the sub-string search method of Shapira to utilize the feature of finding values from columns (Fritchman: col. 1, lns. 8-14).

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Claim 2:

Regarding Claim 2, Shapira and Fritchman disclose the method wherein the respective entry for the particular value is indicative of a number of occurrences of the corresponding substring in that particular value (Fritchman: col. 7, lns. 30-35).

Claim 17:

Regarding Claim 17, Shapira discloses an apparatus for executing a query on a database table, said table comprising values, the apparatus comprising:

- at least one processor (Shapira: col. 10, lns. 5-7);
- a memory coupled with the at least one processor (Shapira: col. 10, lns. 5-13);
- a plurality of indices stored within said memory each index corresponds to one of a plurality of substrings and each index includes a respective entry for each value, the respective entry indicative of whether the corresponding substring occurs within the value (Shapira: col. 5, lns. 11-30 & 55-60; col. 10, lns. 32-43); and
- a program code residing in the memory and executed by the at least one processor, the program code configured to scan the values of the table based on the plurality of indices (Shapira: col. 3, lns. 41-58; col. 5, lns. 30-32; col. col. 10, lns. 24-26).

Shapira shows tables (figs. 2A & 2B) and discloses first index and second index, Shapira does explicitly disclose:

- the column
- a combination of the plurality of indices

However, Fritchman explicitly disclose:

- the column (Fritchman: col. 6, lns. 55-57).

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- a pattern string, which corresponds to a combination of the plurality of indices (Fritchman: col. 5, lns. 46-48).

It would have been obvious to a person having ordinary skill in the art at the time of invention to apply the feature of arranging values in a column and a pattern string of Fritchman into the string search method of Shapira. The skilled artisan would have been motivated to incorporate the Fritchman's teaching of a pattern string and a column in the sub-string search method of Shapira to utilize the feature of finding values from columns (Fritchman: col. 1, lns. 8-14).

Claim 19:

Regarding claim 19, this claim is also rejected based upon the same reason of claims 1 and 17.

13. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shapira in view of Fritchman, and further in view of U.S. Patent No. 5,845,276 issued to Emerson et al. (hereafter Emerson).

Claim 18:

Regarding Claim 18, Shapira and Fritchman do not explicitly disclose the apparatus wherein the program code is further configured to:

build a bitmap based on the plurality of indices, the bitmap having an element for each value of the column that is set based on the respective entries for that value from the plurality of indices.

However, Emerson discloses:



A bitmap creation with an element for a value from a table, which correspond to build a bitmap based on the plurality of indices, the bitmap having an element for each value of the column that is set based on the respective entries for that value from the plurality of indices (col. 11, lns. 60-67; col. 12, lns. 1; col. 19, lns. 8-14).

It would have been obvious to a person having ordinary skill in the art at the time of invention to apply the bitmap generating method of Emerson into the feature of arranging values in a column and a pattern string of Fritchman, and the string search method of Shapira. The skilled artisan would have been motivated to incorporate the Emerson's teaching of the feature to generate the bitmap in the Fritchman's teaching of a pattern string and a column, and the substring search method of Shapira to enhance the relational database searching method (Emerson: col. 1, lns. 18-28).

***Conclusion***

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica M. Pyo whose telephone number is 571-272-8192. The examiner can normally be reached on Mon-Fri 6:30 - 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on 571-272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JEFFREY GAFFIN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100

Monica M Pyo  
Examiner  
Art Unit 2161

6/22/2006

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